

Appl. No. 10/604,036
Amdt. dated August 15, 2005
Reply to Office action of 07/22/2005

Amendments to the Claims:

This listing of claims replaces all previous versions and listings of claims in this application:

Listing of Claims:

1-4 (cancelled).

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5 (original): A tile-based routing method for routing a plurality of signal traces out of a plurality of corresponding bumper pads in a multi-layer circuit board, the multi-layer circuit board comprising at least a first layer and a second layer, the method comprising:

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arranging the plurality of bumper pads as a bumper-tile block by a specific forming process;

assigning a plurality of signal traces corresponding to a plurality of bumper pads of the bumper-tile block as a plurality of first-layer traces being routed in the first layer;

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assigning a plurality of signal traces corresponding to a plurality of bumper pads of the bumper-tile block as a plurality of second-layer traces being routed in the second layer;

routing the plurality of first-layer traces straight forward;

routing the plurality of second-layer traces with a turn not to be vertically parallel

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with the plurality of first-layer traces; and

shielding the plurality of first-layer traces and the plurality of second-layer traces.

6 (original): The tile-based routing method of claim 5 further comprising:

arranging a first-layer shielding trace between every two adjacent first-layer traces in the first layer of the multi-layer circuit board; and

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arranging a second-layer shielding trace between every two adjacent second-layer

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traces in the second layer of the multi-layer circuit board.

- 7 (original): The tile-based routing method of claim 6, wherein the multi-layer circuit board further comprises a third layer used as a ground plane, the method further comprising:
- 5 utilizing each first-layer shielding trace connected to the third layer for grounding;
and
utilizing each second-layer shielding trace connected to the third layer for grounding.
- 10 8 (original): The tile-based routing method of claim 7, wherein the second layer is vertically underneath the first layer, and the third layer is vertically underneath the second layer.
- 9 (original): The tile-based routing method of claim 5, wherein each bumper-tile block
- 15 comprises 8 bumper pads, which correspond to 8 signal traces capable of carrying 8 input/output signals, organized in a plurality of triangle units with equal length of each side.
- 10 (original): The tile-based routing method of claim 9, wherein the bumper-tile block is
- 20 positioned in a periphery area of a die.
- 11 (original): The tile-based routing method of claim 5 being applied to a flip chip packaging technique and other packaging techniques.
- 25 12 (original): The tile-based routing method of claim 5, wherein the multi-layer circuit board is a 6-layer build-up substrate or any other multi-layer board for high pin-count application.

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13-21 (cancelled).